



CREATING SUSTAINABLE COMMUNITIES

A GUIDE FOR DEVELOPERS AND COMMUNITIES

GREEN DESIGN

Green design is an emerging and growing trend in the construction, architecture, and interior design fields. The basic principles of green design include harmonization with the natural characteristics and indigenous resources of the project site, utilization of materials which are recycled or produced in a sustainable manner (instead of virgin/new materials extracted from non-renewable resources), and selection of energy-efficient or renewable energy alternatives. The overall objectives are reduced environmental impact from the construction and operation of buildings, greater comfort and productivity of building occupants, and lower building operating costs.

A development based on green design principles is usually associated with higher property values (with minimum environmental impact) than the conventionally designed ones.

APPLICABLE NEW JERSEY GOALS AND TARGETS

The Reduce projected energy use by 20% by 2020 and meet 20% of the State's electricity needs with Class 1 renewable energy sources by 2020 (NJ Energy Master Plan).

Stabilize GHG emissions at 1990 levels by 2020/ Reduce emissions to 80% below 2006 levels by 2050 (E.O. 54; NJ Global Warming Response Act, P.L.2007, c.112).

Expand efforts to promote incorporation of sustainable or green project design into local planning, individual projects, state investments and state policy (DEP Priorities and Action Plan).

SUGGESTED ACTIONS AND STRATEGIES

Green design can be pursued using (a) the perspective of sustainable (or eco-) design, and (b) the concept of high performance buildings. *Sustainable design* or eco-design is the art and science of designing physical objects based on the principles of economic, social, and ecological sustainability. Its scope ranges from the micro-level design of small objects for everyday use to the macro-level design of buildings, cities, and the physical surface of the earth. *High performance building* design uses a *whole-building*, integrated design strategy that reflects the best of current technologies and systems thinking. From the inception of the design process, each of the building elements (windows, walls, building materials, air conditioning, landscaping, etc.) is considered part and parcel of an integrated system of interacting components. Because decisions in one area often affect other building systems, integrated design leverages these interactions to maximize the overall building performance. Elements of green design and related institutional support include the following:

Adopt Whole Building Design - In 1993, the U.S. Green Building Council developed the Leadership in Energy and Environmental Design (LEED) rating system for certifying sustainable buildings. LEED-certified buildings are energy efficient, improve the well being and health of occupants, minimize effects on the environment and reduce operating costs. A LEED rating system for homes began in 2007. Accredited organizations, termed LEED for Homes Providers, have been established to certify eco-friendly home remodeling and construction. The LEED for Homes page at www.usgbc.org lists many of these groups. See also: Whole Building Design Guide at www.wbdg.org/wbdg_approach.php.



Incorporate Energy Efficiency - Homes built or remodeled to meet energy-efficiency guidelines set by the EPA can qualify as Energy Star Homes (www.energystar.gov). Benefits include lower utility bills, increased comfort, and the potential to qualify for an Energy-Efficient Mortgage. Further benefits are obtained if these homes are designed to be equipped with Energy Star-labeled equipment. Energy Star promotes energy efficiency in over 40 product categories and most qualified products use 10 to 50 percent less energy than standard products. Furthermore, the U.S. Federal Trade Commission requires manufacturers to affix an EnergyGuide label to major appliances that show a unit's estimated annual operating costs and compares its energy use with similar models (www.ftc.gov). Other labeling systems rate other important home building components, e.g., the Cool Roof Rating Council (www.coolroofs.org), which verifies and publishes data about cool roof products, and the National Fenestration Rating Council (www.nfrc.org), which tests and labels windows, glass doors, and skylights.

Choose Good Wood - Natural resource-based building materials, such as wood, should be sourced from sustainably managed systems. The Forest Stewardship Council (www.fsc.org) sets voluntary international standards for responsible forest management. The FSC logo is stamped on lumber and printed on the packaging of wood and paper products. For recycled materials, the Rainforest Alliance's SmartWood (www.rainforest-alliance.com) program awards the Rediscovered Wood certification to forest-products operations that use reclaimed, recycled, or salvaged wood.

Integrate Environmentally Preferable Products - Cleaning products, paint, carpet, particleboard, and flooring are certified by the Scientific Certification Systems to use the SCS "green cross" logo (www.scscertified.com) for recycled or recovered content and biodegradability, among other criteria. Another certification system, Cradle to Cradle (www.c2ccertified.com), assesses a product's impacts throughout its life cycle.

Promote Better Indoor Air Quality - Green Seal (www.greenseal.org) certifies environmental performance in a variety of product categories, including indoor air quality. Interior paints bearing the Green Seal logo have zero or very low levels of volatile organic compounds (VOCs) and other problematic chemicals. A voluntary program, Greenguard (www.greenguard.org), tests and certifies products, e.g., paint, insulation, and flooring that emit low or zero levels of potentially harmful chemicals.

STATE TECHNICAL/FINANCIAL ASSISTANCE

New Jersey ENERGY STAR Homes provides incentives to builders/developers to build homes above minimum energy code to higher Energy Star label, targeting Smart Growth Areas.

FURTHER INFORMATION

Green Building Rating Systems:

- US Green Building Council's Leadership in Energy and Environmental Design - www.usgbc.org
- Green Globes™ - www.greenglobes.com
- NJ Green Homes Office - www.state.nj.us/dca/hmfa/biz/devel/gho/
- National Association of Home Builders Green Home Building - www.nahbrc.org/greenguidelines/
- Minnesota Sustainable Building Guidelines - www.msbj.umn.edu/index.html

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